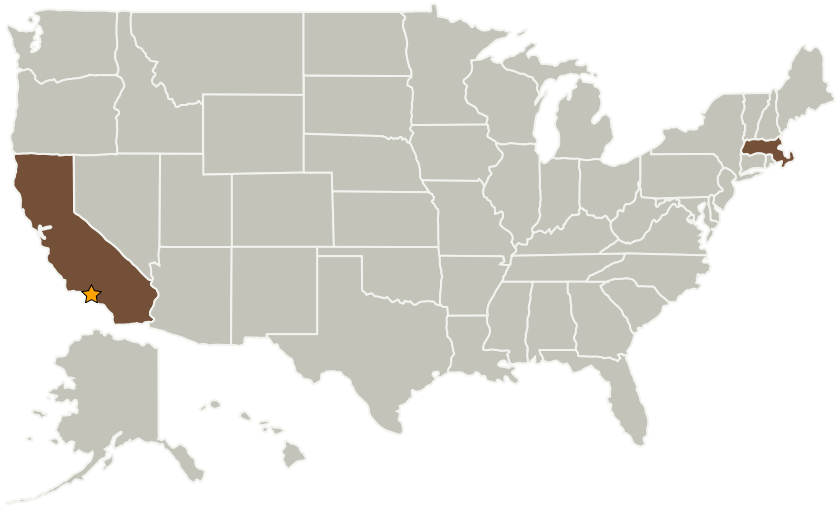
Flexible T/R Modules for Large-Aperture, Space-Based SAR, Phase II

Completed Technology Project (2005 - 2007)

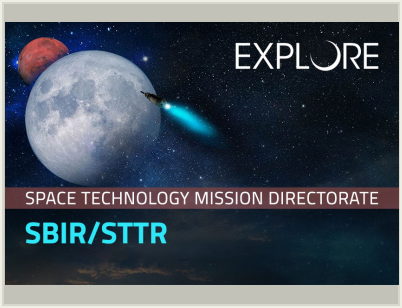
Project Introduction

There is a need for electronically-steerable, space-deployable SAR antenna arrays which impose minimal weight burden on the vehicles that place them into orbit. SAR arrays may be several tens to hundreds of meters long in at least one dimension, necessitating their assembly from many smaller subarrays. However, suitable technologies for manufacturing T/R modules directly on even these smaller (albeit still large-area), flexible subarrays have been lacking, hindering development of space-based arrays. SI2 Technologies' innovation is to apply its Direct Write techniques to fabricating flexible T/R modules that can be integrated with each array element. The novelty of SI2's Direct Write manufacturing approach is that no tooling, masks, or harsh etchants are required. SI2's "printing" technology lends itself to any number of applications that require flexible antenna systems (e.g., earth science, military asset tracking, civilian communications, etc.). For the proposed Phase II program, SI2 will design and fabricate chipless T/R modules for a membrane SAR antenna array using Direct Write manufacturing processes.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Jet Propulsion Laboratory(JPL)	Lead Organization	NASA Center	Pasadena, California
SI2 Technologies, Inc.	Supporting Organization	Industry	Billerica, Massachusetts



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations	
California	Massachusetts

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - TX12.1 Materials
    - TX12.1.3 Flexible Material Systems